

Claims

WHAT IS CLAIMED IS:

1. A computer network, comprising:
a plurality of interconnected nodes, each one of said nodes having a DTE device coupled thereto and wherein said DTE device coupled to a first one of said nodes further comprises:
a computing system located at a first location;
a human interface located at a second location, said second location remotely located relative to said first location;
a first interface device coupled to said computing system;
a second interface device coupled to said human interface;
a transmission line coupling said first and second interface devices;
said first interface device converting signals generated by said computing system into a format suitable for transmission to said second interface device and said second interface device converting signals, received from said first interface device into a format suitable for transmission to said human interface.

2. A computer network according to claim 1 wherein said transmission line coupling said first and second interface devices is a 4-wire cable.

3. A computer network according to claim 1 and further comprising a cable for interconnecting said plurality of nodes.

4. A computer network according to claim 1 wherein said cable is a thin wire coaxial cable.

1 5. A computer network according to claim 1 wherein said
2 computing system further comprises a computer chassis and at least one
3 computing system component housed in said computer chassis and coupled
4 to said first interface device.

1 6. A computer network according to claim 5 wherein said human
2 interface further comprises a monitor coupled to said second interface
3 device.

1 7. A computer network according to claim 6 wherein said human
2 interface further comprises either a printer, a keyboard, or a mouse coupled
3 to said second interface device.

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1 8. A computer network, comprising:
2 a plurality of interconnected nodes, each one of said nodes having a
3 DTE device coupled thereto and wherein said DTE device coupled to a first
4 one of said nodes further comprises:
5 a computing system located at a first location;
6 a human interface located at a second location, said second
7 location remotely located relative to said first location, said human interface
8 comprised of a video monitor and at least one input/output ("I/O") device;
9 a first encoder coupled to said computing system;
10 a first decoder coupled to said video monitor and said at least
11 one I/O device;
12 a transmission line coupling said encoder and said decoder;
13 said first encoder receiving, from said computing system, a
14 video signal to be transmitted to said video monitor and a non-video signal
15 to be transmitted to said at least one I/O device and combining said video
16 and said non-video signals into a first combined signal;
17 said first decoder receiving said first combined signal from said
18 first encoder and separating said video and non-video signals therefrom for
19 respective propagation to said video monitor and said at least one I/O
20 device.

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9. A computer network according to claim 8 wherein said human interface further comprises first, second and third I/O devices and wherein said computer network further comprises:

a second encoder, coupled to said computing system and said first encoder, said second encoder receiving a first non-video signal to be transmitted to said first I/O device, a second non-video signal to be transmitted to said second I/O device and a third non-video signal to be transmitted to said third I/O device and combining said first, second and third non-video signals into said non-video signal received by said first encoder; and

a second decoder, coupled to said first decoder and said first, second and third I/O devices, said second decoder receiving said non-video signal from said first decoder, separating said first, second and third non-video signals therefrom and transmitting said first, second and third non-video signals to said first, second and third I/O devices, respectively.

10. A computer network according to claim 8 wherein said first I/O device is a keyboard, said second I/O device is a mouse and said third I/O device is a printer.

11. A computer network according to claim 8 wherein said first encoder receives R, G, B, HSYNC and VSYNC video signals from said computing system and combines said R and HSYNC video signals into a second combined signal to be transmitted to said first decoder, combines said B and VSYNC video signals into a third combined signal to be transmitted to said first decoder and combines said G video signal and said non-video signal into said first combined signal.

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1 ¹¹/~~12~~. A computer network according to claim ¹⁰/~~11~~ wherein said first
2 encoder transmits said HSYNC and VSYNC video signals to said second
3 encoder, said second encoder using said HSYNC and VSYNC video signals
4 to time combining said first, second and third non-video signals into said
5 non-video signal.

1 ¹²/~~13~~. A computer network according to claim ¹¹/~~12~~ wherein said first
2 decoder transmits said HSYNC and VSYNC video signals to said second
3 decoder, said second decoder using said HSYNC and VSYNC video signals
4 to time separating said non-video signal into said first, second and third
5 non-video signals.

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1 A computer network, comprising:
2 a plurality of nodes, each one of said nodes having a DTE device
3 coupled thereto; and
4 a connective structure for interconnecting said DTE devices
5 respectively coupled to said plurality of nodes into a computer network;
6 said DTE device coupled to a first one of said nodes further
7 comprising:
8 a computing system located at a first location;
9 a human interface located at a second location, said second
10 location remotely located relative to said first location, said human interface
11 comprised of a video monitor and an input/output ("I/O") device;
12 a first interface device coupled to said computing system, said
13 first interface device including an encoding circuit;
14 a second interface device coupled to said monitor and said I/O
15 device, said second interface device including a decoding circuit; and
16 a 4-wire cable coupling said first and second interface devices,
17 said 4-wire cable being comprised of first, second, third and fourth
18 transmission lines;
19 said encoding circuit receiving, from said computing system,
20 plural video signals to be transmitted to said video monitor and a non-video
21 output signal to be transmitted to said I/O device, combining said non-video
22 signal with a selected one of said plural video signals to produce a combined
23 signal and transmitting said combined signal over a selected pair of said
24 first, second, third and fourth transmission lines of said 4-wire cable;
25 said decoding circuit receiving said combined signal from said
26 first interface device and separating said combined signal into said video
27 signal for transmission to said video monitor and said non-video signal for
28 transmission to said I/O device.

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1 ¹⁴~~15~~. A computer network according to claim ¹³~~14~~ wherein said second
2 interface device further comprises:

3 an encoding circuit having an input coupled to said I/O device and an
4 output coupled to said selected pair of said transmission lines;

5 said encoding circuit encoding a non-video input signal, received from
6 said I/O device, for transmission to said computing system over said
7 selected pair of transmission lines .

1 ¹⁵~~16~~. A computer network according to claim ¹⁴~~15~~ wherein said first
2 interface device further comprises:

3 a decoding circuit having first and second inputs coupled to respective
4 ones of said selected pair of said transmission lines and an output coupled
5 to said computing system;

6 said decoding circuit decoding said non-video input signal received
7 from said encoding circuit of said second interface device for transmission to
8 said computing system.

17. A computer network having commonly located computing systems, comprising:

- a plurality of nodes, each one of said nodes having a DTE device coupled thereto; and
- a connective structure for interconnecting said DTE devices respectively located at said plurality of nodes into a computer network; wherein at least two of said nodes are positioned at a common location and wherein said DTE device coupled to each one of said at least two nodes positioned at said common location further comprises:
 - a computing system located at said common location;
 - a human interface located at a second location, said second location remotely located relative to said common location, said human interface comprised of a video monitor and at least one input/output ("I/O") device;
 - a first interface device coupled to said computing system;
 - a second interface device coupled to said video monitor and said at least one I/O device;
 - a transmission line coupling said first interface device and said second interface device;
 - said first interface device converting a video signal to be transmitted to said video monitor and a non-video signal to be transmitted to said at least one I/O device into at least one signal having a format suitable for transmission to said second interface device and said second interface re-converting said at least one signal having said format, received from said first interface device, into said video signal and said non-video signal for respective propagation to said video monitor and said at least one I/O device.

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~~18.~~ A computer network according to claim ¹⁶~~17~~ wherein said
2 computing systems respectively coupled to each one of said at least two
3 nodes are housed together in a shared computer room.

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~~18.~~ A computer network according to claim ¹⁶~~17~~ wherein said
2 computing systems respectively coupled to each one of said at least two
3 nodes are housed together in a common support structure located in a
4 shared computer room.

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~~20.~~ A computer network according to claim ¹⁸~~19~~ wherein said
2 common support structure is a computer rack.

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~~21.~~ A computer network according to claim ¹⁹~~20~~ wherein said second
2 location at which said human interface for said computing system coupled
3 to a first one of said at least two nodes is also remotely located relative to
4 said second location at which said human interface for said computing
5 system coupled to a second one of said at least two nodes is located.

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22. A computer network having commonly located computing systems, comprising:

- a plurality of nodes, each one of said nodes having a DTE device coupled thereto; and
- a connective structure for interconnecting said DTE devices respectively located at said plurality of nodes into a computer network; wherein at least two of said nodes are positioned at a common location and wherein said DTE device coupled to each one of said at least two nodes positioned at said common location further comprises:
 - a computing system located at said common location;
 - a human interface located at a second location, said second location remotely located relative to said common location, said human interface comprised of a video monitor and at least one input/output ("I/O") device;
 - a first encoder coupled to said computing system;
 - a first decoder coupled to said video monitor and said at least one I/O device;
 - a transmission line coupling said encoder and said decoder;
 - said first encoder receiving, from said computing system, a video signal to be transmitted to said video monitor and a non-video signal to be transmitted to said at least one I/O device and combining said video and said non-video signals into a first combined signal;
 - said first decoder receiving said first combined signal from said first encoder and separating said video and non-video signals therefrom for respective propagation to said video monitor and said at least one I/O device.

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23. A computer network according to claim 22 wherein said connective structure is arranged in a bus topology.

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24. A computer network according to claim 21 wherein said second
1 location at which said human interface for said computing system coupled
2 to a first one of said at least two nodes is also remotely located relative to
3 said second location at which said human interface for said computing
4 system coupled to a second one of said at least two nodes is located.
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25. A computer network according to claim 21 wherein said
1 computing systems respectively coupled to each one of said at least two
2 nodes are housed together in a shared computer room.
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26. A computer network according to claim 21 wherein said
1 computing systems respectively coupled to each one of said at least two
2 nodes are housed together in a common support structure located in a
3 shared computer room.
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27. A computer network according to claim 25 wherein said
1 common support structure is a computer rack.
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28. A computer network according to claim 22 wherein said human interface of said DTE device coupled to each one of said at least two nodes further comprises first, second and third I/O devices and wherein said DTE device coupled to each one of said at least two nodes further comprises:

a second encoder, coupled to said computing system and said first encoder, said second encoder receiving a first non-video signal to be transmitted to said first I/O device, a second non-video signal to be transmitted to said second I/O device and a third non-video signal to be transmitted to said third I/O device and combining said first, second and third non-video signals into said non-video signal received by said first encoder; and

a second decoder, coupled to said first decoder and said first, second and third I/O devices, said second decoder receiving said non-video signal from said first decoder, separating said first, second and third non-video signals therefrom and transmitting said first, second and third non-video signals to said first, second and third I/O devices, respectively.

29. A computer network according to claim 28 wherein said first I/O device is a keyboard, said second I/O device is a mouse and said third I/O device is a printer.

30. A computer network according to claim 28 wherein said first encoder receives R, G, B, HSYNC and VSYNC video signals from said computing system and combines said R and HSYNC video signals into a second combined signal to be transmitted to said first decoder, combines said B and VSYNC video signals into a third combined signal to be transmitted to said first decoder and combines said G video signal and said non-video signal into said first combined signal.

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1 A computer network, comprising:
2 a first computing system located at a first location;
3 a first human interface located at a second location, said second
4 location remotely located relative to said first location, said first human
5 interface comprised of a video monitor and an input/output device;
6 a first interface device coupled to said first computing system, said
7 first interface device including an encoding circuit;
8 a second interface device coupled to said monitor and said
9 input/output device of said first human interface, said second interface
10 device including a decoding circuit;
11 a 4-wire cable coupling said first and second interface devices, said 4-
12 wire cable coupling said first and second interface devices being comprised
13 of first, second, third and fourth transmission lines;
14 said encoding circuit of said first interface device receiving, from said
15 first computing system, a first set of plural video signals to be transmitted
16 to said video monitor of said first human interface and a first non-video
17 output signal to be transmitted to said input/output device of said first
18 human interface, combining said first non-video signal with a selected one
19 of said first set of plural video signals to produce a first combined signal
20 and transmitting said first combined signal over a selected pair of said first,
21 second, third and fourth transmission lines of said 4-wire cable coupling
22 said first and second interface devices;
23 said decoding circuit of said second interface device receiving said
24 first combined signal from said first interface device and separating said
25 first combined signal into said selected one of said first set of plural video
26 signals for transmission to said video monitor of said first human interface
27 and said first non-video signal for transmission to said input/output device
28 of said first human interface;

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29 a second computing system commonly located at said first location
30 with said first computing system;

31 a second human interface located at a third location, said third
32 location remotely located relative to said first location and to said second
33 location, said second human interface comprised of a video monitor and an
34 input/output device;

35 a third interface device coupled to said second computing system, said
36 third interface device including an encoding circuit;

37 a fourth interface device coupled to said monitor and said
38 input/output device of said second human interface, said fourth interface
39 device including a decoding circuit;

40 a 4-wire cable coupling said third and fourth interface devices, said 4-
41 wire cable coupling said third and fourth interface devices being comprised
42 of first, second, third and fourth transmission lines;

43 said encoding circuit of said third interface device receiving, from said
44 second computing system, a second set of plural video signals to be
45 transmitted to said video monitor of said second human interface and a
46 second non-video output signal to be transmitted to said input/output device
47 of said second human interface, combining said second non-video signal with
48 a selected one of said second set of plural video signals to produce a second
49 combined signal and transmitting said second combined signal over a
50 selected pair of said first, second, third and fourth transmission lines of said
51 4-wire cable coupling said third and fourth interface devices;

52 said decoding circuit of said fourth interface device receiving said
53 second combined signal from said third interface device and separating said
54 second combined signal into said selected one of said second set of video
55 signals for transmission to said video monitor of said second human
56 interface and said second non-video signal for transmission to said
57 input/output device of said second human interface; and

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58 a connective structure for interconnecting said first computing system
59 and said second computing system into a computer network.

1 ³¹
~~32.~~ A computer network according to claim ³⁰~~31~~ wherein said second
2 interface device further comprises:

3 an encoding circuit having an input coupled to said I/O device of said
4 first human interface and an output coupled to said selected pair of said
5 transmission lines of said first 4-wire cable;

6 said encoding circuit of said second interface device encoding a first
7 non-video input signal, received from said I/O device of said first human
8 interface, for transmission to said first computing system over said selected
9 pair of transmission lines of said first 4-wire cable;

10 and wherein said fourth interface device further comprises:

11 an encoding circuit having an input coupled to said I/O device of said
12 second human interface and an output coupled to said selected pair of said
13 transmission lines of said second 4-wire cable;

14 said encoding circuit of said fourth interface device encoding a second
15 non-video input signal, received from said I/O device of said second human
16 interface, for transmission to said second computing system over said
17 selected pair of transmission lines of said second 4-wire cable.

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33. A computer network according to claim 31 wherein said first
interface device further comprises:

a decoding circuit having first and second inputs coupled to respective
ones of said selected pair of said transmission lines of said first 4-wire cable
and an output coupled to said first computing system;

said decoding circuit of said first interface device decoding said first
non-video input signal received from said encoding circuit of said second
interface device for transmission to said first computing system;
and wherein said third interface device further comprises:

a decoding circuit having first and second inputs coupled to respective
ones of said selected pair of said transmission lines of said second 4-wire
cable and an output coupled to said second computing system;

said decoding circuit of said third interface device decoding said
second non-video input signal received from said encoding circuit of said
fourth interface device for transmission to said second computing system.